STATE CORONER'S COURT
OF NEW SOUTH WALES

Inquiry	Sydney Aquatic Centre Fire 13 October 2013
Hearing dates:	12 March 2015
Date of findings:	23 March 2015
Place of findings:	NSW State Coroners Court - Glebe
Findings of:	**Magistrate H Barry, Coroner**
File number:	2013/324938
Representation:	**Sgt Welsh – Coronial Advocate**
Findings:	**I find, pursuant to section 81(2) of the Coroners Act 2009, that the fire in the P2 car park at Sydney Olympic Park Aquatic Centre commenced at about 3pm on 13 October 2013. It originated in a garden bed abutting the southern edge of the P2 car park and travelled by wind blowing rapidly across the car park as well as large amounts of embers being blown about.** **I make an open finding as to the circumstances of the fire.**

Introduction:

This coronial inquiry is concerned with the fire that occurred at Sydney Olympic Park (hereinafter referred to as 'SOP') on the 13 October 2013. In that fire a large number of motor vehicles were destroyed or damaged.

These vehicles were parked primarily in the staff car park and P2 car park, which are located in the vicinity of the Sydney Aquatic Centre, within SOP.

SOP is 640 hectares and includes the SOP Aquatic Centre and SOP Athletics Centre. The Aquatic Centre and Athletics Centre, as well as the Aquatic Centre staff car park and the adjoining P2 car park, are managed by the Sydney Olympic Park Authority (SOPA).

The Sydney Olympic 'P2' car park is for patrons of the SOP Aquatic Centre and SOP Athletics Centre and is located a short distance south of the Aquatic Centre. The entry to the P2 car park is off Shane Gould Avenue. Shane Gould Avenue runs from west to east along the southern edge of the P2 car park. To the west of the P2 car park is a smaller car park reserved for staff. This is referred to by staff as the 'Green Zone Area'. The P2 car park and the Green Zone Area are separated by a strip of garden bed and the entry road to the P2 car park. Around the staff car park are garden beds composed of mulch and native vegetation. Similar garden beds separate the bays in the P2 car park where the fire later spread.

On the 13 October 2013, witnesses described the day as being hot and the wind as strong. There was a total fire ban in effect in the Greater Sydney Area.

About 3:00 p.m., the P2 Sydney Olympic car park was operating at full capacity due to both an Aquatic carnival and an Athletic carnival. There were approximately 3,500 people at the Aquatic Centre. The staff car park was at capacity, and several vehicles were parked outside the bays and partially on the garden strips. Due to the car park being at capacity, cars were waiting for available spots in the P2 car park.

Attendant Anand THAPA was manning a barricade at the entry and was allowing cars to enter as spots became available. At this time he smelled smoke, looked over his right shoulder, and saw "small red flames" about 15 metres from where he was standing. These flames were in a garden bed abutting the southern edge of the staff car park. The fire began quickly spreading. THAPA notified his supervisor, who notified staff at the Aquatic Centre.

Benjamin LEHNEN was working as the pool supervisor and holds the role of Chief Warden during emergencies. He began monitoring the fire via CCTV. (The CCTV

does not capture the fire's ignition, but the camera was able to be panned across to view the fire after it was brought to the staff's attention.)

Several staff members were sent with fire extinguishers but could not contain the fire. The fire then spread to motor vehicles parked in the staff car park. The fire then jumped to another grass hill and shortly afterwards LENEHAN decided to evacuate the Aquatic Centre. At about 3:25 p.m. LENEHAN sent two staff members to manually trigger the evacuation order via the Fire Control Panel. The Aquatic Centre was evacuated to the designated evacuation point - Olympic Boulevard and Figtree Avenue.

Crews from a number of fire stations attended.

The fire was brought under control at around 4:30 p.m. Two civilians and two fire fighters were treated for non-serious injuries. There were no casualties. 47 motor vehicles were completely destroyed and approximately 105 vehicles in total sustained fire related damage.

The Inquiry:

A Coroner has jurisdiction to hold an inquiry concerning a fire or explosion concerning the cause and origin of a fire or explosion if the coroner is satisfied that the fire destroyed or damaged any property within the State (Section 30(1) of the *Coroners Act 2009*).

The primary function of a coroner at the conclusion of an inquiry is to be found in Section 81(2) of the *Coroners Act 2009*. That section requires that the coroner is to make findings if there is sufficient evidence to enable him or her to do so:

(a) As to the date and place of the fire or explosion, and

(b) In the case of an Inquiry that is being concluded – the circumstances of the fire or explosion.

Section 82(1) of the Act provides that a coroner conducting an Inquiry may also make such recommendations, as he or she considers necessary or desirable in relation to any matter connected with the fire or explosion. The making of recommendations are discretionary and relate usually, but not necessarily only to matters of public health, public safety or the conduct of services provided by public instrumentalities.

The Evidence:

Fire Hydrants and signage

Dominic Langan gave evidence at the inquiry. Mr Langan is the Manager of Safety and Security at SOP. His evidence was that SOPA controls, *inter alia,* car parks on the site and the P2 car park, the subject of this inquiry.

At the time of the fire, Wormald was contracted by SOPA to provide fire services and maintenance to the Aquatic centre and athletics centre. The fire system for the aquatic centre extended into the P2 car park.

The contract with Wormald outlined all inspection, servicing and maintenance requirements to be carried out by Wormald in relation to the Aquatic centre, which included servicing and maintenance of things such as fire hydrants, hose reels, fire detector systems, fire doors and emergency warning systems.

There were eight fire hydrants located around the perimeter of the aquatic centre and P2 car park. Each pillar fire hydrant has two water supply points. The fire brigade suction booster assembly has an additional 4 individual water supply points. At the time of the fire there was signage at the entrance to the Aquatic Centre depicting the location of the fire hydrants

Plans drawn up by Fire and Rescue NSW to ensure that firefighters are prepared for an emergency at a specific building or facility in their area of operation are normally kept at the local fire station. These are known as pre-incident plans. Mr Langan told the inquiry that Lidcombe, Rhodes and Silverwater stations had been involved in the pre-incident planning.

The closest fire stations to SOP are at Lidcombe and Silverwater. However it was Ashfield fire station which responded to the fire on 13 October 2013. Crews from Lidcombe and Silverwater had earlier been despatched to other bushland on the day due to the extreme conditions.

Mr Ian Arkley, a fire-fighter with Fire and Rescue NSW was the Station Officer from the Ashfield Fire Station on the day. He was the incident controller on the day. He told the inquiry that Ashfield station was not a station included in the pre-incident planning as the station was not in close proximity to SOP, but had been called in due to unavailability of other fire services

His crew arrived at 15:23 hours, after the call was logged at 15.03. On arrival he observed a large pall of dark coloured smoke being driven at ground level by a strong wind. Fire was burning on both sides of the road and there was a dangerous level of reduced visibility.

He further observed numerous motor vehicles alight with a wind driven fire being rapidly blown across the car park in addition to a large amount of embers being blown about.

Mr Arkley stated that Fire Hydrants could not be located and his crew was looking for water for 5 to 10 minutes. He said there were no signs indicating location of the hydrants. A water source was eventually located on the far side of the car park and a number of lengths of hose were needed.

According to Mr Arkley, signage indicating the location of fire hydrants is normally located on power poles or roadway in close proximity to the hydrant by an HP or HR sign.

Evidence from Mr Langan suggests that these signs are ordinarily applied to underground hydrants where there is a reticulated water supply. There is no reticulated water supply on Shane Gould Ave which runs adjacent to the car park.

In fact, at the time of the fire there was signage depicting the location of fire hydrants at the entrance to the Aquatic centre. That signage was in the form of a block plan which was affixed to the booster pump room located next to the entrance.

Mr Langan told the inquiry that in his view those stations in close proximity to SOP would have access to the information about the location of the hydrants because of their involvement in the pre-incident planning. Unfortunately, Mr Arkley, from Ashfield Station did not have access to that information.

It would appear from the evidence that such information is now stored electronically and it may be appropriate that such information is made available to stations within a greater radius of SOP. A Fire Risk Management Plan was prepared by Mr Langan. A debrief document annexed to that plan identifies areas for improvement in SOPA's response to the fire that occurred on 13 October 2013.

A number of improvements have been suggested. One such improvement is that fire hydrants in the park be now clearly identified with either HP, HR or H signage, indicating to fire fighters the location of hydrants in the park. Whilst it is questionable that such signage, being plates about 50mm x200mm, would have been visible on the day, bearing in mind that bright red large above ground hydrants were not, Counsel For SOPA has indicated a willingness by SOPA to comply with this improvement.

This, coupled with action to ensure that stations within a wider radius of the park are included in any pre-incident planning or information may assist fire fighters in any future event.

Vegetation

Mr Arkley continued to observe a large amount of embers being driven around and across the car park by strong winds. There were numerous explosions as tyres and other objects exploded in the extreme heat.

Mr Arkley stated that the thick layer of dried out mulch together with the dried out planting in the garden beds made it difficult to extinguish the fire and assisted the ember attack.

Mr John Saford, horticulturist employed by SOPA told the inquiry that at the time of the fire the P2 car park had two species of native grass planted around it:

(a) Fountain grass, and

(b) Mat –rush

Both of these plants are self- sustaining species of native grass, in that they do not require irrigated watering to survive.

At the time of the fire P2 car park did not have an irrigation system.

Mr Saford explained that Fountain Grass has a high rate of susceptibility to ignition when exposed to direct flame, especially in extremely dry or drought conditions. Mat-Rush does not tend to dry out as regularly as Fountain Grass and ordinarily is less likely to ignite than Fountain Grass but if the right amount of heat exists, Mat-Rush will still ignite. Mr Saford stated that because the conditions on 13 October were so extreme the Mat-Rush ignited and burned anyway.

In the opinion of Mr Saford other native grasses are little different to the two types used around P2 carpark in terms of their susceptibility to ignition. In his oral evidence, Mr Saford maintained that given the conditions of the day any plant would have ignited. Irrigation may have slowed the process, but given the level of heat on that day he believes there was little that would have substantially changed the result.

In addition his evidence was that it would be almost impossible to successfully plant an area such as SOP without the use of mulch. Mulch is used for water retention in the soil and weed reduction. Given the public nature and size of the park it would not be feasible to plant without the use of mulch.

In an ideal situation, Mr Saford said that exotic ground covers and plants could be used. Bearing in mind the nature of the park and the purpose for which it was established, a major departure from the use of native vegetation would not appear viable nor indeed desirable.

At present there is a plan to install an irrigation project in the P2 car park.

It is considered by Mr Saford that the installation of an irrigation system will provide a greater number of options as to the type of plant species that could be used. It is

expected that this will not only reduce maintenance costs but improve the overall site presentation.

A consideration as to the type of vegetation will be made by Mr Saford once the irrigation system has been installed. Such consideration will necessarily involve the question of the susceptibility to fire.

Conclusion

The purpose of this inquiry was to identify if possible the cause and origin of the fire.

The Crime Scene investigation revealed evidence consistent with that contained in Mr Thapa's statement about the origin of the fire. There seems little doubt that the fire started near the rear of a Holden Commodore parked rear to curb in the staff car park. The rear of the vehicle overhung the garden strip near that area.

Fire and Rescue investigator Robert Jansen analysed exhaust muffler temperatures and ignition temperatures and concluded the likely temperature of the exhaust muffler would not have been sufficient to start the fire.

Mr Jansen suggested that a discarded cigarette may have caused the fire. This cannot be established conclusively as no such material was discovered at the scene. Whilst the Aquatic Centre is a non smoking venue and well sign posted to that effect, SOPA does not have authority to ban smoking in areas that are in the public domain.

Unfortunately, even though it is an offence to discard cigarettes or butts, there is little that can be done to prevent the actions of some persons who disregard the law and the safety of the community.

I find the origin of the fire to be a garden bed abutting the southern edge of the P2 car park.

I find that the circumstances of the fire occurred in a confluence of extreme conditions:

- High temperature
- Strong wind
- Low Humidity
- Drought affected plants with a high susceptibility to fire

H Barry, Coroner